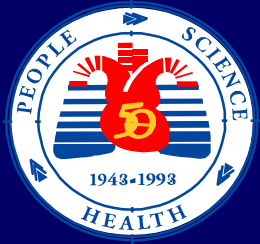


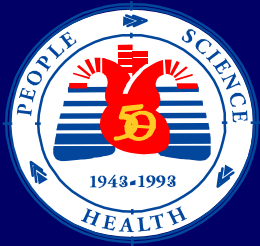
Blood Pressure Measurement

- Patients should be seated with back supported and arm bared and supported.
- Patients should refrain from smoking or ingesting caffeine for 30 minutes before measurement.
- Measurement should begin after at least 5 minutes of rest.
- Appropriate cuff size and calibrated equipment should be used.
- Both SBP and DBP should be recorded.
- Two or more readings should be averaged.



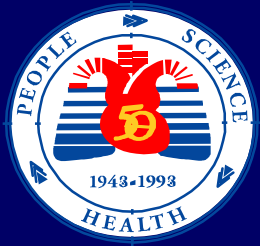
Advantages of Self-Measurement

- Identifies “white-coat hypertension.”
- Assesses response to medication.
- Improves adherence to treatment.
- Potentially reduces costs.
- Usually provides lower readings than those recorded in clinic. (Hypertension is defined as SBP > 135 or DBP > 85 mm Hg).



Ambulatory Measurement

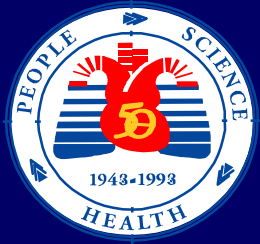
- Ambulatory monitoring can provide
 - Readings throughout the day during usual activities.
 - Readings during sleep to assess nocturnal changes.
 - Measures of SBP and DBP load.
- Ambulatory readings are usually lower than in clinic. (Hypertension is defined as SBP > 135 or DBP > 85 mm Hg).



Classification of Blood Pressure for Adults

| Category | SBP (mm Hg) | | DBP (mm Hg) |
|--------------|----------------|-----|----------------|
| Optimal | < 120 | and | < 80 |
| Normal | < 130 | and | < 85 |
| High-normal | 130–139 | or | 85–89 |
| Hypertension | | | |
| Stage 1 | 140–159 | or | 90–99 |
| Stage 2 | 160–179 | or | 100–109 |
| Stage 3 | ≥ 180 | or | ≥ 110 |

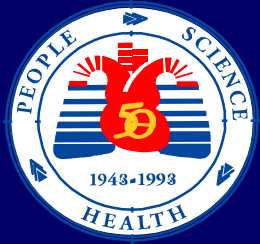
When SBP and DBP fall into different categories, use the higher category.



Recommendations for Followup Based on Initial Measurements

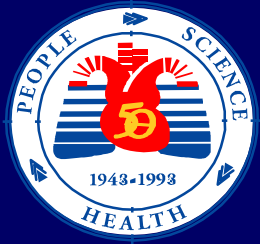
Initial Blood Pressure

| SBP | DBP | Followup Recommended |
|---------|---------|--|
| < 130 | < 85 | Recheck in 2 years |
| 130–139 | 85–89 | Recheck in 1 year, give lifestyle advice |
| 140–159 | 90–99 | Confirm within 2 months, give lifestyle advice |
| 160–179 | 100–109 | Evaluate/refer to care within 1 month |
| ≥ 180 | ≥ 110 | Evaluate/refer to care within 7 days |



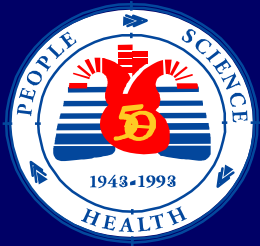
Evaluation Objectives

- To identify known causes.
- To assess presence or absence of target organ damage and cardiovascular disease.
- To identify other risk factors or disorders that might guide treatment.



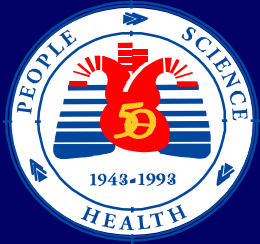
Evaluation Components

- Medical history
- Physical examination
- Routine laboratory tests
- Optional tests



Medical History

- Duration and classification of hypertension.
- Patient history of cardiovascular disease.
- Family history.
- Symptoms suggesting causes of hypertension.
- Lifestyle factors.
- Current and previous medications.



Physical Examination

- Blood pressure readings (two or more).
- Verification in contralateral arm.
- Height, weight, and waist circumference.
- Funduscopic examination.
- Examination of the neck, heart, lungs, abdomen, and extremities.
- Neurological assessment.



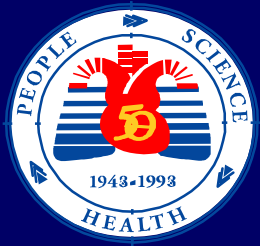
Laboratory Tests and Other Diagnostic Procedures

- Determine presence of target organ damage and other risk factors.
- Seek specific causes of hypertension.



Laboratory Tests Recommended Before Initiating Therapy

- Urinalysis
- Complete blood count
- Blood chemistry (potassium, sodium, creatinine, and fasting glucose)
- Lipid profile (total cholesterol and HDL cholesterol)
- 12-lead electrocardiogram



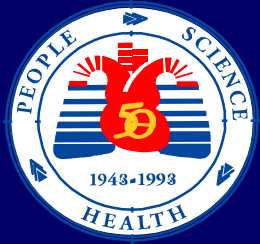
Optional Tests and Procedures

- Creatinine clearance
- Microalbuminuria
- 24-hour urinary protein
- Serum calcium
- Serum uric acid
- Fasting triglycerides
- LDL cholesterol
- Glycosolated hemoglobin
- Thyroid-stimulating hormone
- Plasma renin activity/urinary sodium determination
- Limited echocardiography
- Ultrasonography
- Measurement of ankle/arm index



Examples of Identifiable Causes of Hypertension

- Renovascular disease
- Renal parenchymal disease
- Polycystic kidneys
- Aortic coarctation
- Pheochromocytoma
- Primary aldosteronism
- Cushing syndrome
- Hyperparathyroidism
- Exogenous causes



Components of Cardiovascular Risk in Patients With Hypertension

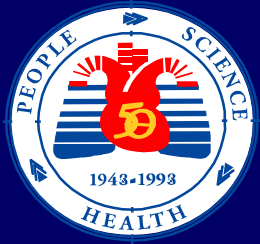
Major Risk Factors:

- Smoking
- Dyslipidemia
- Diabetes mellitus
- Age older than 60 years
- Sex (men or postmenopausal women)
- Family history of cardiovascular disease



Clinical Risk Factors for Stratification of Patients With Hypertension

- Heart diseases
- Stroke or transient ischemic attack
- Nephropathy
- Peripheral arterial disease
- Retinopathy



Risk Stratification

Risk Group A

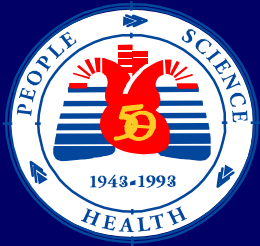
- No risk factors.
- No target organ disease/clinical cardiovascular disease.

Risk Group B

- At least one risk factor, not including diabetes.
- No target organ disease/clinical cardiovascular disease.

Risk Group C

- Target organ disease/clinical cardiovascular disease and/or diabetes.
- With or without other risk factors.

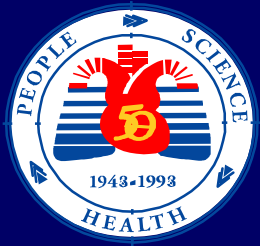


Treatment Strategies and Risk Stratification

| Blood Pressure Stages (mm Hg) | Risk Group A | Risk Group B | Risk Group C |
|--|--|---|---|
| High-normal (130–139/85–89) | Lifestyle modification | Lifestyle modification | Drug therapy* Lifestyle modification |
| Stage 1 (140–159/90–99) | Lifestyle modification (up to 12 months) | Lifestyle modification (up to 6 months)** | Drug therapy Lifestyle modification |
| Stages 2 and 3 ($\geq 160/\geq 100$) | Drug therapy Lifestyle modification | Drug therapy Lifestyle modification | Drug therapy Lifestyle modification |

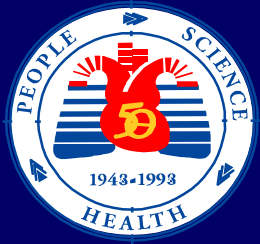
*For those with heart failure, renal insufficiency, or diabetes.

**For those with multiple risk factors, clinicians should consider drugs as initial therapy plus lifestyle modification.



Summary of Chapter 2

- Blood pressure classified as optimal, normal, high-normal, or stages 1, 2, or 3.
- Recommendations for detection, confirmation, and evaluation remain consistent with those in the JNC V report.
- In self-monitoring and ambulatory measurement, hypertension is now defined as SBP > 135 mm Hg and DBP > 85 mm Hg.



Summary of Chapter 2 (continued)

- New sections discuss genetics and clinical clues to identifiable causes of hypertension.
- New tables list cardiovascular risk factors and describe risk stratification.